Patent Claims

1. Mobile work device, in particular mobile concrete pump, with a vehicle chassis (10), with two front and two rearward supporting extension arms (22, 24) extendable from a travel position to at least one support position and supportable upon a foundation (36) with respectively one telescopic support leg (28), and with respectively one measuring member (38) for determining the support load on the support legs (28), thereby characterized, that the telescopic support legs (28) have a telescope member (30) rigidly connected to the extension arm, and a support leg casing (26) coupled by means of a linkage bolt (32), wherein the linkage bolt (32) is designed as a measuring member (38) for determining the support load.

2. Working device according to Claim 1, thereby characterized, that a device for determining the elastic bending of the linkage bolt (32) occurring during the supporting process is used as the gauge for determining the support load specific to the support leg.

3. Working device according to Claim 2, thereby characterized, that the linkage bolt (32) carries at least one tension measuring strip (DMS1 through DMS4) for determining the bending of the bolt.

4. Working device according to Claim 3, thereby characterized, that the linkage bolt (32) includes at least one axially parallel running longitudinal groove (54) for receiving the tension measuring strips (DMS1 through DMS4).

5. Working device according to Claim 4, thereby characterized, that the linkage bolt (32) includes two longitudinal grooves (54) lying opposite to each other with reference to a bending plane (52), open towards oppositely facing sides for receiving of respectively two tension measuring strips DMS1, DMS3 (or as the case may be DMS2 and DMS4), and that the contacts of the tension measuring strips are connected with each other in a measurement circuit (44) in the form of a bridge circuit.

6. Working device according to Claim 4 or 5, thereby characterized, that the linkage bolt (32) exhibit a one-side open central bore (55') as well as a transverse bore (55") running from

the at least one longitudinal groove (54) to the central bore for receiving a measurement cable.

7. Working device according to one of Claims 1 through 6, characterized by a device for determining the elastic shear strain occurring during the supporting process in the area of the bearing locations (56) of the linkage bolt (32) as value for the support leg relevant support load.

8. Working device according to Claim 7, thereby characterized, that the linkage bolt (32) in the area of the bearing locations (56) caries at least one tension measuring strip (DMS1 through DMS4) for determining the shear strain.

9. Working device according to Claim 8, thereby characterized, that the linkage bolt (32) in the area of the bearing locations (56) includes at least one through hole (58) oriented in the direction of supporting, in which a membrane (56) connected unitarily with the bolt material is provided, which carries at least one tension measuring strip (DMS1 through DMS4).

10. Working device according to Claim 9, thereby characterized, that the linkage bolt (32) on both bearing locations (56) respectively exhibits one through hole (58) with membrane (56), wherein the membrane is provided in the shear plane (62) between an inner and an outer bearing of the support leg (28).

11. Working device according to Claim 10, thereby characterized, that on each of the two broadside surfaces of the membrane (60) facing away from each other respectively one parallel to the shear plane (62) running tension measuring strip (DMS1 through DMS4) is provided, and that the tension measuring strips are connected with each other in a measuring circuit (44), preferably in the form of a bridge circuit (12)

12. Working device according to one of Claims 9 through 11, thereby characterized, that the tension measuring strips provided on the two broad surfaces of the membrane (60) are oriented diagonal to the direction of support.

13. Working device according to Claim 12, thereby characterized, that the two tension measuring strips (DMS1 through DMS4) provided on the two broad surfaces of the membrane cross each other pair-wise at an angle of from 45° to 90°.

14. Working device according to one of Claims 4 through 14, thereby characterized, that the measurement circuit (44) is connected with a computer supported evaluation unit (48, 50) via a signal amplifier (46) in the form of an operation amplifier.

15. Working device according to one of Claims 1 through 14, thereby characterized, that the linkage bolt (32) carries on its part projecting beyond the support leg casing a housing part (76) for receiving a measuring and evaluation unit (44, 68).

16. Working device according to Claim 14 or 15, thereby characterized, that the evaluation electronic (48, 50) includes a software routine for determining a stability safety value (S) from the quotients of the total sum of the support load measured values of all support legs and a partial sum of the support load measured value of the two momentarily most highly loaded support legs, as well as an alarm routine for triggering an alarm condition upon exceeding a predetermined threshold value for the stability safety value.

17. Working device, in particular mobile concrete pump, with a vehicle chassis (10), with two forward and two rearward supporting extension arms (22, 24) pivotable from a travel position to at least one supporting position and respectively with one telescopic support leg (28) supportable upon the foundation (36) supporting the extension arm (22, 24), respectively with one measuring element (38) for determining the support load in the support legs (28), and with a device for monitoring the degree of stability, which includes an evaluation unit (68, 74), which receives support leg relevant support load measurement values at predetermined sample intervals, characterized by a software routine for determining a support safety value (S) from the quotients of the total sum of the support load measured values of all support legs (28) and a partial sum of the support load measured values of the two momentarily most highly loaded support legs (28), as well as an alarm routine for triggering an alarm condition upon dropping below a predetermined threshold value for the support degree of safety value.

18. Working device according to Claims 16 or 17, thereby characterized, that the alarm triggering threshold value is between 1.05 and 1.25.

19. Working device according to one of Claims 14 through 18, thereby characterized, that multiple staged or stepped threshold values (S1, S_2, S_3) trigger alarms for stability safety.

20. Working device according to Claim 18, thereby characterized, that upon dropping below a first threshold value (S_1) an acoustic and/or optical signal can be triggered.

21. Working device according to Claim 20, thereby characterized, that upon dropping below of a second threshold value (S_2) of a lower value than the first, a releasable blocking of a load displacing work process can be triggered.

22. Working device according to Claim 21, thereby characterized, that upon dropping below a third threshold value (S_3) lower in value than the second, a non-override blocking of the load displacement working process can be initiated.